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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/814,441

03/31/2004

Deniz Erdogmus

5853-406-1

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04/08/2008

AKERMAN SENTERFITT

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EXAMINER

JACOB, MARY C

ART UNIT

PAPER NUMBER

2123

MAIL DATE

DELIVERY MODE

04/08/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/814,441	Applicant(s) ERDOGMUS ET AL.	
	Examiner MARY C. JACOB	Art Unit 2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-57 is/are pending in the application.
- 4a) Of the above claim(s) 22-57 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5,6,8-16,19 and 20 is/are rejected.
- 7) ☒ Claim(s) 3,4,7,17,18 and 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/8/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The response filed 2/22/08 has been received and considered. Claims 1-21 are presented for examination. Claims 22-57 have been withdrawn.

Election/Restrictions

2. Applicant's election of Claims 1-21 in the reply filed on 2/22/08 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Objections

3. Claims 1, 4, 7, 8, 11, 14, 15, 18 and 21 are objected to because of the following informalities. Appropriate correction is required.

4. Claims 1, 8 and 15, step b recites "estimating outputs", however, step c recites, "the estimated output". Based on Figure 2, element 210, it is understood by the Examiner that step b should recite, "estimating an output" instead of "estimating outputs".

5. Claims 4, 11 and 18 set forth that "the parameter vector" is w_k , however, claims 1, 8 and 15 do not set forth that "the parameter vector" is represented by w_k . It would be better if claims 4, 11 and 18 set forth that "the parameter vector" is represented by w_k (for example, as is set forth in claim 7).

6. Claims 4, 11 and 18 are directed to further limitations of step (a), however, "the step size" is not set forth until step (d).

7. Claims 7, 14 and 21 recite "further comprising", it would be better if written, "further comprises".

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 2, 5, 6, 9, 12, 13, 16, 19 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

10. Claims 2, 9 and 16 recite repeating steps (b)-(e) for "subsequent iterations". This is unclear since the claim does not indicate when the iterations will stop, therefore, setting forth an endless loop.

11. Claim 5, 6, 12, 13, 19 and 20 refer to a β value, however, a β value is set forth in claims 3, 7, 10, 14, 17 and 21, not claims 1, 8 and 15. It is unclear whether this β value is the same β value set forth in claims 3, 7, 10, 14, 17 and 21, or a different β value.

Claim Rejections - 35 USC § 101

12. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

13. Claims 8-14 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims recite functional descriptive material and therefore, are directed to non-statutory subject matter. The claims are directed to “a system for building a model for a physical plant in the presence of noise” and further recite “means for” language without any hardware elements set forth (for example, a processor or memory). Because the specification, paragraph 0038, recites, “The present invention can be realized in hardware, software or a combination of hardware and software”, and the claim does not set forth any hardware elements to show that the claim is directed only to a hardware embodiment, the claimed “means” appear to cover at least one software embodiment. Therefore the claims are interpreted to recite functional descriptive material only, and therefore, are directed to non-statutory subject matter.

Claim Rejections - 35 USC § 102

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

15. Claims 1, 2, 8, 9, 15 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Shen (US Patent 5,416,845, cited on 11/8/04 IDS).

16. As to Claims 1, 8 and 15, Shen teaches: a method of building a model for a physical plant in the presence of noise comprising: (a) initializing the model of the physical plant, wherein the model is characterized by a parameter vector (equation 3); (b) estimating outputs using the model (equation 4); (c) computing a composite cost comprising a weighted average of a squared error between the estimated output from the model and an actual output of the physical plant, and a squared derivative of the error (equations 5-7); (d) determining a step-size and a model update direction (equations 7, 9, 14; column 4, lines 17-20 and lines 34-36); and (e) updating the model of the physical plant, wherein said updating step is dependent upon the step size (equations 8, 10).

17. As to Claims 2, 9, and 16, Shen teaches: further comprising repeating said steps (b)-(e) for subsequent iterations (column 2, lines 29-48).

Allowable Subject Matter

18. Claims 3, 4, 7, 17, 18 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

20. Douglas et al ("Self-Whitening Algorithm for Adaptive Equalization and Deconvolution", IEEE Transactions on Signal Processing" Vol. 47, No. 4, April 1999) teaches two algorithms that employ an equalizer as a prewhitening filter within the gradient updates.
21. Ray et al (US Patent 6,741,707) teaches a method to automatically and adaptively tune a leaky, normalized least-mean-square (LNLMS) algorithm so as to maximize the stability and noise reduction performance in feed forward adaptive noise cancellation systems.
22. Higa et al (US Patent Application Publication 2002/0046011) teaches an equalization method that utilizes mean squared error and cost function techniques.
23. Lin (US Patent 6,590,976) teaches a two-step training method for the estimation filter in the echo cancellation path of the analog front-end circuit for a modem and teaches a cost function, gradient and update direction.
24. Hui et al (US Patents 6,674,820 and 6,590,932) teaches whitening signals and whitening filters.
25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary C. Jacob whose telephone number is 571-272-6249. The examiner can normally be reached on Tuesday-Thursday, 7AM-4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached on 571-272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Mary C Jacob/

Examiner, Art Unit 2123

/M. C. J./

4/3/08

/Paul L Rodriguez/
Supervisory Patent Examiner,
Art Unit 2123